



How can we reduce the impact of fishing?

TEACHER'S KEY

Check your understanding



1 Why is it important to have a balance of predators and prey in an ecosystem?

Answer

Ecosystems consist of lots of food chains that connect to form a large food web. A healthy ecosystem is one that is 'balanced' between predators and prey. Predators play an important role in controlling the size of the prey populations, and this protects the resources that the prey eats (such as vegetation if the prey eats plants).

Equally, if the prey population (such as herring) falls, then this would result in there being less food for the predators (such as cod). This could then reduce the cod population.

2 Some scientists think that fishing should be "unselective". They suggest that fisheries should catch fish of all species and sizes. Why do you think this might not be a good idea?

Answer

Fishing all species from worms to whales is not in line with global efforts to protect species and ecosystems. It also means that we risk capturing unwanted or endangered species.

Most importantly, by fishing all sizes, you will be catching the young of large species together with the adults of small species. These young fish would not have had a chance to grow and reproduce. Catching the young fish of large species like cod, results in a large reduction in population biomass.

3 Looking at figures 2 & 3, which fishing strategy results in the lowest catch and biomass?

Answer

Having high fishing pressure and narrow mesh sizes results in the lowest biomass and catches.

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4

The most important economic factor for commercial fisheries is profitability – this is the difference between the money that the fishermen can sell their catch for, and the cost of fishing. Can you think of some of the costs of fishing, and why do you think that the rules in our study will help to reduce these costs?

Answer

There are lots of costs involved in catching fish! Some of these are:

- The diesel needed to fuel the boat (this is the highest cost, directly related to the amount of fishing)
- The wages of the fishermen (this is the second highest cost)
- The cost of the boat and the gear (these are one-time costs, spread over the lifetime of boat and gear)
- Repairs, insurance and other costs (these are recurring, annual cost)

The rules in our paper would increase the catches and thus the income. But they would also increase the number of fish in the water and thus reduce the time (and therefore the diesel and working hours) needed to capture a certain amount of fish. And they would increase the average weight of the fish, so that fewer fish need to be killed for a certain catch. Since larger fish typically achieve a higher price per kilo, this would again increase profitability while reducing the impact of fishing at the same time.

5

If the science is so clear about the economic benefits of sustainable fishing, why are fishers not going for it? Why are they not willing to catch less for 2-3 years, to help the fish recover, if thereafter they can catch substantially more forever? Why do you think are managers and politicians not helping fishers to make the transition?

Answer

The slow progress is caused by the fishing lobby, who only acts in the short term interest of their clients and always demands highest possible catches right now.